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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,325	11/14/2003	Richard C. Woudenberg	06155-089001	2692

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EXAMINER

BERMAN, SUSAN W

ART UNIT

PAPER NUMBER

1711

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/714,325

Applicant(s)

WOUDENBERG, RICHARD C.

Examiner

Susan W Berman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Specification

The abstract of the disclosure is objected to because it fails to describe the kinds of ink composition and the photoinitiator system that is employed. Correction is required. See MPEP § 608.01(b).

Applicant is reminded of the proper content of an Abstract of the Disclosure.

In chemical patent abstracts for compounds or compositions, the general nature of the compound or composition should be given as well as its use, *e.g.*, "The compounds are of the class of alkyl benzene sulfonyl ureas, useful as oral anti-diabetics." Exemplification of a species could be illustrative of members of the class. For processes, the type reaction, reagents and process conditions should be stated, generally illustrated by a single example unless variations are necessary.

Complete revision of the content of the abstract is required on a separate sheet.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There is no clear difference between the "aromatic ketone" and the "alpha-cleavage" photoinitiators set forth as components of the photoinitiator system in claims 1, 10, 18 and 19. The specification distinguishes between the two photoinitiators by defining the first aromatic ketone as undergoing homolysis by both fragmentation and hydrogen abstraction and the second alpha-cleavage photoinitiator as an aliphatic or aromatic ketone that undergoes only fragmentation. However, it is known in the art that substituted benzophenones undergo bimolecular reaction by hydrogen abstraction in combination with an amine synergist to generate a radical, while alpha-cleavage initiators generate a free radical independent of a synergist. See Pappas, "Photoinitiated Polymerization", pages 338-344, Green

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“Photoinitiators, Types and Properties”, pages 246-252, and Vesly, “Mechanisms of the Photodecomposition of Initiators”, pages 4-10.

Additionally, the use of the word “type” in “alpha-cleavage type” photoinitiator renders the claim indefinite because it is not clear whether applicant intends to claim an alpha-cleavage photoinitiator or some other photoinitiator of the same type. With respect to claim 17, there is no antecedent basis for “hot melt ink composition” because the claim depends from claim 10, which recites a “liquid ink composition”.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/54416. WO ‘416 discloses radiation curable ink compositions, as set forth in the Abstract. The photoinitiator can be present in amounts from 1 to 15 wt. %. See Examples 1-8 wherein ink compositions containing a photoinitiator system comprising 4-phenyl benzophenone, a morpholinophenyl butanone, a thioxanthone and an amino synergist are taught.

The difference is that the weight percents of initiators, especially of the alpha-cleavage photoinitiator, disclosed in the examples of WO ‘416 differ from the weight percents set forth in instant claims 1, 10, 18 and 19. The wt. % alpha-cleavage photoinitiator used, 2-benzyl-2-dimethylamine-1-(4-morpholinophenyl) butan-1-one, is as instantly claimed when 3 wt % (see Example 4). WO ‘416 does not limit the amount of alpha-cleavage photoinitiator except by the 1-15 wt.% total photoinitiator, but also does not mention using greater amounts. The wt. % benzophenone encompasses the instantly claimed

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range. The weight % photosensitizer encompasses the instantly claimed range. The wt % amine synergist is within the instantly claimed range. It would have been obvious to one skilled in the art at the time of the invention to employ 3 wt. % butanone in the compositions disclosed by WO '416 because WO '416 includes an example using 3 wt. %. It would have been obvious to one skilled in the art at the time of the invention to increase the amount of alpha-cleavage photoinitiator in the compositions disclosed by WO '416 in order to increase the amount of free radical initiating moieties in the compositions. It would have been obvious to one skilled in the art at the time of the invention to employ a combination of photoinitiators and co-initiators following the example of WO '416 and to determine the optimum weight percents of the disclosed photoinitiator/co-initiator components required to obtain the desired results in curing a particular composition. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of successfully radiation curing the disclosed compositions and obtaining a useful ink coating.

Conclusion

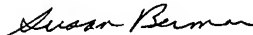
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Caiger et al (6,586,492 and 6,114,406) are considered to be equivalent to WO '416. Gummesson discloses ink jet ink compositions comprising a photoinitiator blend. Deeken et al teach that photoinitiators including a combination of morpholino phenyl ketone and chlorothioxanthone provide an exceptionally high cure rate in radiation curable ink formulations.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W Berman whose telephone number is 571 272 1067. The examiner can normally be reached on M-F 9:30-6:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Susan W Berman
Primary Examiner
Art Unit 1711

SB
6/3/04